Paying for College: A Summary

So far this report has described the prices that full-time dependent undergraduates faced at various types of institutions, how much they were expected to contribute toward paying for their education, how much financial aid they needed and received, how much they earned by working while enrolled, and whether they received help from others in paying their tuition. This final section summarizes the major findings of the analysis to provide an overall picture of how low- and middle-income students pay for college at each type of institution. It is unavoidably incomplete, but nevertheless illustrates important differences between low- and middle-income students and across institution types.

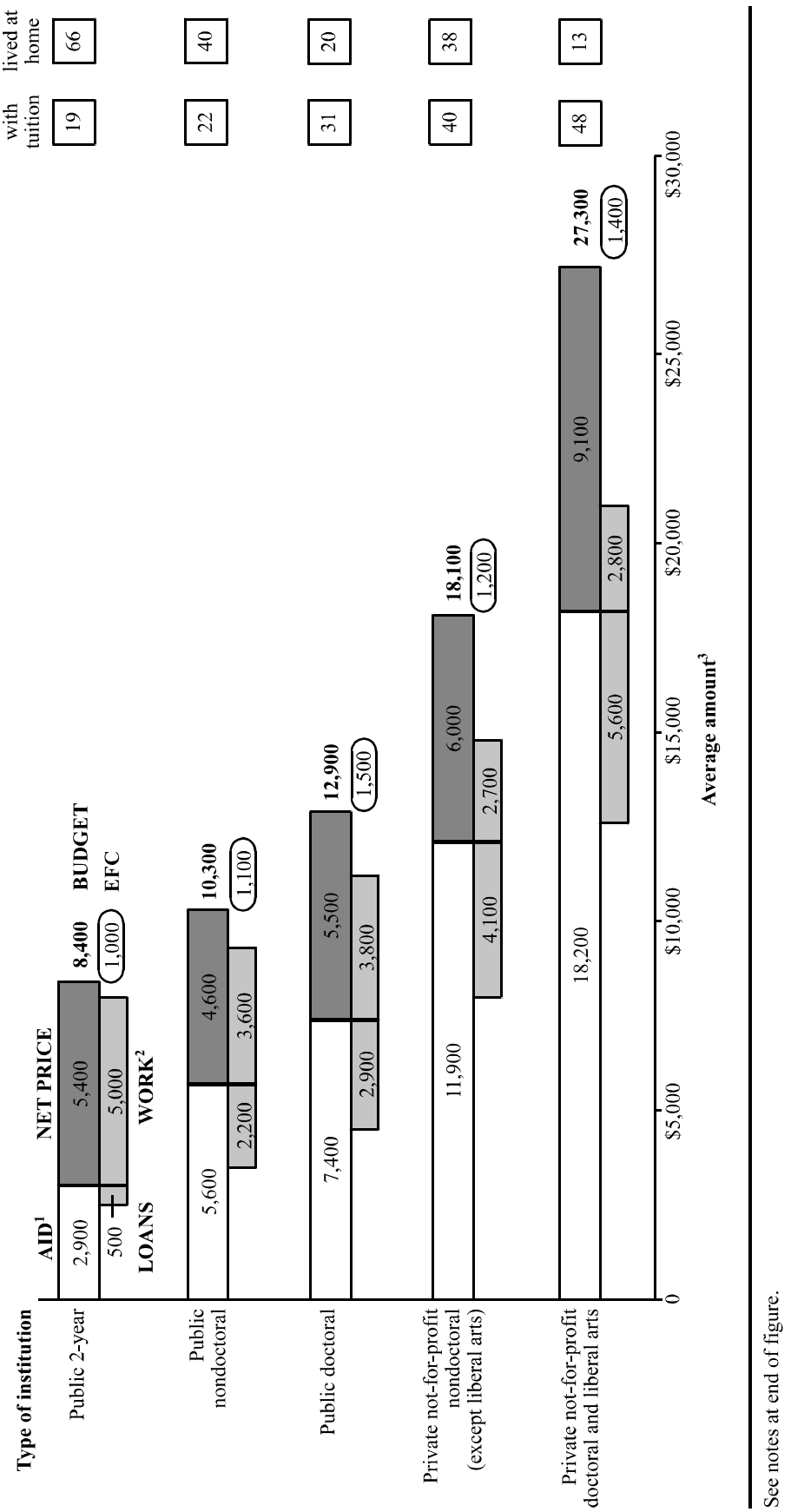
Figure 8 shows data for low- and middle-income students separately, with two horizontal bars for each institution type. The top bar represents the average student budget (also shown in table 4) and its two components: financial aid (excluding work-study here, unlike the average shown in table 6) and net price (the amount paid by students and their families, also shown in table 14). The lower bar shows the known family effort: loans, including PLUS loans to parents (also shown in table 6), and the contribution of earnings while enrolled to net price (also shown in table 15), assuming that these earnings are used entirely for educational expenses.[12] The averages shown were computed using both aided and unaided students in order to show the relative contributions of the different amounts to the totals.

The circled numbers in the figure represent the EFC (also shown in table 4). When the net price is greater than the EFC—that is, when the amount that students and their families must pay is greater than the amount they are expected to pay—students have unmet need. A comparison of the EFC to work indicates how much of the family contribution theoretically could have come from student work while enrolled.[13] The boxes on the right show the percentages of students whose parents (or others) helped pay their tuition and the percentages who lived at home (also shown in table 18). The rest of this section summarizes this information for low- and middle-income students at each type of institution, with some references to earlier sections. Unless otherwise indicated, data cited below are shown in figure 8.

[12]Savings are not included because data on savings from summer work are not available for all students, only for those who had worked during the school year.

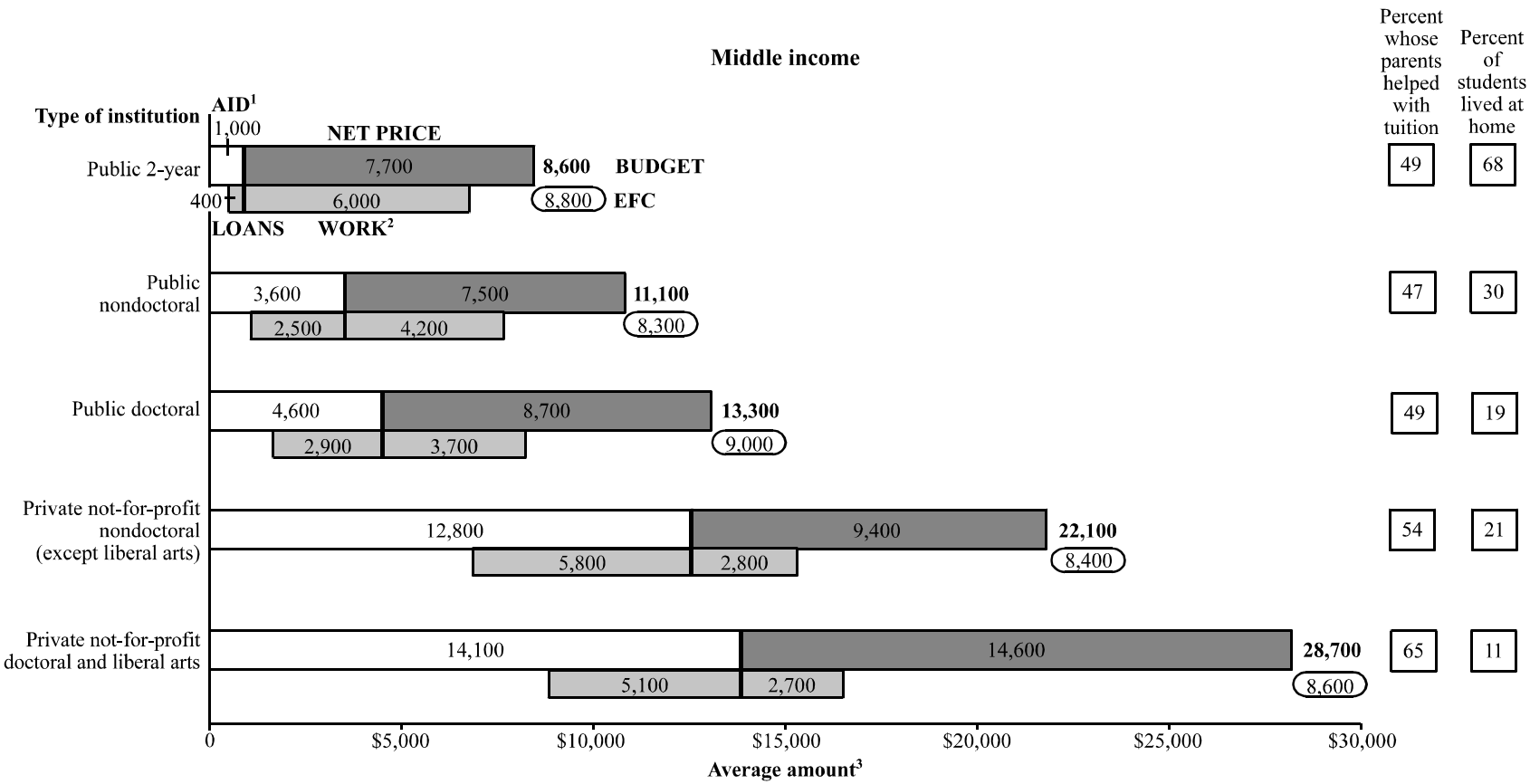
[13]There is no way of knowing what sources of funds families actually use.

Figure 8. Average amounts for selected components of the average student budget for full-time, full-year dependent low- and middle-income undergraduates, sources of funds, and percentage of students who received support from their parents, by type of institution: 1999–2000



See notes at end of figure.

Figure 8. Average amounts for selected components of the average student budget for full-time, full-year dependent low- and middle-income undergraduates, sources of funds, and percentage of students who received support from their parents, by type of institution: 1999–2000—Continued



HOW TO READ: The top bar in each set represents the average student budget with its two components: financial aid (excluding work-study) and what students and their families must pay (net price). The lower bar shows the known family effort: loans and student earnings from work while enrolled (assuming that these earnings are used entirely for educational expenses). The circled numbers represent the expected family contribution (EFC). When the net price is greater than the EFC—that is, when the amount students and their families must pay is greater than the amount they are expected to pay—students have unmet financial need.

[1]Aid includes grants/scholarships, loans, and "other" aid (such as ROTC, aid for veterans' dependents and survivors, and other unidentified types of aid), but excludes work-study aid. Earnings from work-study participation are included in "work." Therefore, this average amount of aid differs from the total shown in table 6.

[2]Includes work-study earnings.

[3]Average amounts include unaided as well as aided students.

NOTE: Limited to undergraduates who attended only one institution and who were U.S. citizens or permanent residents. Detail may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000).

Public 2-Year

Low-income students (average budget: $8,400): These students covered their education expenses primarily with grant aid (especially federal, as shown in figure 5) and work while enrolled. Because relatively few students borrowed, the amount averaged over all students was $500. Parents were more likely to assist their children by having them live at home while enrolled (66 percent did so) than by helping to pay their tuition (19 percent).

Middle-income students (average budget: $8,600): Middle-income students at public 2-year institutions typically did not receive grant aid from the federal government, although they received some from other sources (figure 5). They borrowed an average of about $400, and covered about $6,000 of their $7,700 net price with their own earnings from work while enrolled. About half of the students (49 percent) reported receiving help from their parents with tuition, and 68 percent (about the proportion of low-income students) lived at home while enrolled.

Public 4-Year Nondoctoral

Low-income students (average budget: $10,300): Low-income students at public nondoctoral institutions received more grant aid than their counterparts at public 2-year institutions, on average (table 5). Grant aid for low-income students was still primarily federal, but included some from other sources as well (figure 5). Loans were primarily subsidized Stafford loans (figure 6). Student earnings accounted for about $3,600 of the $4,600 net price. Twenty-two percent of low-income students received help paying tuition from parents or others, and 40 percent lived at home.

Middle-income students (average budget: $11,100): Middle-income students at public nondoctoral institutions typically were not eligible for federal grant aid. They received some nonfederal grant aid (figure 5), but most of their aid was in the form of loans (figure 4). Their loans were a mixture of subsidized and unsubsidized Stafford loans, with some parents taking out PLUS loans (figure 6). Earnings while enrolled accounted for about $4,200 of the $7,500 net price. Middle-income students were more likely than their low-income peers to get help from parents in paying their tuition (47 percent) and were less likely to live at home (30 percent).

Public 4-Year Doctoral

Low-income students (average budget: $12,900): The average net price of attending a public doctoral institution ($5,500) was greater than that of attending a public nondoctoral

institution ($4,600), but not significantly different from attending a public 2-year institution ($5,400). In other words, on average, low-income students did not pay more out-of-pocket in 1999–2000 to attend a public doctoral institution than a public 2-year institution. On average, low-income students at public doctoral institutions received larger grants (especially institutional grants) than their counterparts at public 2-year or public nondoctoral institutions (figure 5). Thirty-one percent of low-income students received help paying their tuition, and they were less likely than their peers at public nondoctoral institutions to live at home.

Middle-income students (average budget: $13,300): Middle-income students at public doctoral institutions, like their low-income peers, borrowed an average of $2,900, and the two groups earned an average of $3,700 to $3,800 during the school year. However, middle-income students received less grant aid than low-income students (figure 4), which meant they had to rely more on other sources such as parental support. Indeed, they were more likely than their low-income counterparts to receive help with their tuition (49 percent vs. 31 percent).

Private Not-For-Profit 4-Year Nondoctoral

Low-income students (average budget: $18,100): Low-income students who attended private not-for-profit nondoctoral institutions received a relatively large amount of aid compared with students at public nondoctoral institutions, particularly grant aid (figure 4). Their grant aid came from both federal and nonfederal sources (figure 5). Borrowing was mainly in the form of subsidized Stafford loans (figure 6). Compared with their counterparts at public doctoral institutions, low-income students at private not-for-profit nondoctoral institutions borrowed more and earned less from working while enrolled. However, no difference was detected in students' average net prices after receiving aid at these two types of institutions because students at private not-for-profit nondoctoral institutions received more grant aid, especially institutional grant aid (figure 5). Forty percent of the students received parental help in paying tuition, and 38 percent lived at home.

Middle-income students (average budget: $22,100): Whereas low-income students at public institutions received more aid, on average, than middle-income students, the reverse was true at private not-for-profit nondoctoral institutions, where middle-income students received about $900 more in total aid than their low-income peers. This was partly because they tended to enroll at institutions with higher tuition and fees, but middle-income students also borrowed more than low-income students. Institutional grant aid was an important source of aid at private not-for-profit nondoctoral institutions (figure 5), as were loans, which consisted of a combination of subsidized and unsubsidized Stafford loans and PLUS loans (figure 6). About 54 percent of middle-income students received help from parents with tuition, and middle-income students were less likely than low-income students to live at home (21 percent vs. 38 percent).

Private Not-For-Profit 4-Year Doctoral and Liberal Arts

Low-income students (average budget: $27,300): Low-income students at private not-for-profit doctoral and liberal arts institutions averaged $12,500 in grant aid, $8,200 of which came from their institution (figure 5). Although they borrowed an average of $5,600, they still had an average net price of $9,100. Some of this price was covered by work (an average of $2,800), but the source of the rest is not clear. About half of the students (48 percent) reported receiving some help with their tuition, but it is difficult to imagine that low-income families would have the resources to cover the entire difference between the net price and the amount earned.

Middle-income students (average budget: $28,700): Middle-income students at private not-for-profit doctoral and liberal arts institutions also received sizeable amounts of grant aid, on average ($8,900), most of which was institutional aid ($7,200) (figure 5). Their average net price was $14,600, on average, of which $2,700 was covered by work. Sixty-five percent of the students received help with tuition. As was the case with low-income students, it is not clear how these families assembled the resources to cover the net price.

Conclusion

For low-income students at each type of institution, the EFC fell short of the price students had to pay, even after financial aid. At public 2-year institutions, low-income students appeared to cover their educational expenses by receiving aid (primarily grants), living at home, and working while enrolled. At public 4-year institutions, they appeared to depend primarily on aid (both grants and loans) and their own earnings, with some help from their parents. While low-income students at private not-for-profit 4-year institutions received substantial amounts of aid, it is difficult to understand how they covered their educational expenses given the gap between the net price and EFC and the amount these students reported earning on their own, especially at private not-for-profit doctoral and liberal arts institutions, where relatively few students lived at home.

At public institutions and private not-for-profit nondoctoral institutions, middle-income students and their families were in a better position than their low-income counterparts to cover their expenses. With access to student loans (and substantial grants at private not-for-profit nondoctoral institutions), these families, on average, generally appeared able to bring the net price into line with the EFC. At private not-for-profit doctoral institutions, however, despite grants and loans, there remained a relatively large unexplained amount of the net price to cover beyond the EFC.

References

Baum, S. (1999). Need Analysis: How We Decide Who Gets What. In J.E. King (Ed.), *Financing a College Education: How It Works, How It's Changing* (pp. 48–63). Phoenix, AZ: The American Council on Education and the Oryx Press.

Berkner, L., Berker, A., Rooney, K., and Peter, K. (2002). *Student Financing of Undergraduate Education: 1999–2000* (NCES 2002–167). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

The Carnegie Foundation. (2000). *The Carnegie Classification of Institutions of Higher Education*. Menlo Park, CA: Author. Available: *http://www.carnegiefoundation.org/ Classification/CIHE2000/background.htm* [November 14, 2002].

The College Board. (2002a). *Trends in College Pricing: 2002*. Washington, DC: The College Entrance Examination Board.

The College Board. (2002b). *Trends in Student Aid: 2002*. Washington, DC: The College Entrance Examination Board.

The College Board. (2003). *Paying for College.* Available: *http://www.collegeboard.com/paying* [February 18, 2003].

Creech, J.D., and Davis, J.S. (1999). Merit-Based Versus Need-Based Aid: The Continual Issues for Policymakers. In J.E. King (Ed.), *Financing a College Education: How It Works, How It's Changing* (pp. 120–136). Phoenix, AZ: The American Council on Education and the Oryx Press.

Harvey, J., and Immerwahr, J. (1994). *Goodwill and Growing Worry: Public Perceptions of Higher Education*. Washington, DC: American Council on Education.

Immerwahr, J. (2002). *The Affordability of Higher Education*. San Jose, CA: The National Center for Public Policy and Higher Education.

Lee, J.B., and Clery, S.B. (1999). *State Aid for Undergraduates in Postsecondary Education* (NCES 1999–186). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Redd, K. (2000). *Discounting Toward Disaster: Tuition Discounting, College Finances, and Enrollments of Low-Income Undergraduates.* USA Group Foundation, New Agenda Series 2(2).

Spencer, A.C. (1999). The New Politics of Higher Education. In J.E. King (Ed.), *Financing a College Education: How It Works, How It's Changing* (pp. 101–119). Phoenix, AZ: The American Council on Education and the Oryx Press.

U.S. Department of Education. (2000). *Student Financial Aid Handbook: 1999–2000*. Washington, DC: Author.

U.S. Department of Education, National Center for Education Statistics. (2001). *The Condition of Education 2001* (NCES 2001–072). Washington, DC: U.S. Government Printing Office.

U.S. General Accounting Office. (2002). *Student Aid and Tax Benefits: Better Research and Guidance Will Facilitate Comparison of Effectiveness and Student Use*. Washington, DC: Author.

Appendix A—Glossary

This glossary describes the variables used in this report. The variables were taken directly from the NCES NPSAS: 2000 undergraduate Data Analysis System (DAS), an NCES software application that generates tables from the NPSAS:2000 data (see appendix B for a description of the DAS). The variables listed in the index below are organized by category in the order they appear in the report within that category. The glossary is in alphabetical order by variable name in the DAS (displayed in bold letters at the right-hand side of the page).

GLOSSARY INDEX

DAS variable

Applied for financial aid **AIDAPP**

Indicates whether the student applied for financial aid for the 1999–2000 academic year.

Ratio of total aid to student budget **AIDCST2**

The ratio of total aid received during 1999–2000 to the student budget.

Attendance status **ATTNSTAT**

Combined attendance intensity and persistence during 1999–2000. Intensity refers to the student's full- or part-time attendance while enrolled. Persistence refers to the number of months a student was enrolled during the year. Students were considered to have been enrolled for a full year if they were enrolled 9 or more months during 1999–2000. Months did not have to be contiguous or at the same institution, and students did not have to be enrolled for a full month in order to be considered enrolled for that month. For this analysis, ATTNSTAT was used as a filter to select students who enrolled full time, full year at one institution (ATTNSTAT=1).

Undergraduate federal loans total **BORFED4**

The cumulative federal loan amount the student borrowed for undergraduate education through July 1, 2000. Includes PLUS loans taken out by their parents.

Student budget **BUDGETFT**

The total student budget amount for full-time, full-year students for 1999–2000.

Carnegie Code with control **CC2000A**

The 2000 Carnegie Classification includes all colleges and universities in the United States that are degree granting and accredited by an agency recognized by the U.S. Secretary of Education. The 2000 edition classifies institutions based on their degree-granting activities from 1995–96 through 1997–98. In this variable, a distinction was made between public, private not-for-profit, and private for-profit institutions. Public institutions are supported primarily by public funds and operated by publicly elected or appointed officials who control the programs and activities. Private not-for-profit institutions are controlled by an independent governing board and incorporated under Section 501(c)(3) of the Internal Revenue Code. Private for-profit institutions were not included in this analysis.

The following categories were used in this analysis:

Public 2 year	Public 2-year institutions with an "Associate's Colleges" Carnegie Code. This category includes institutions that offer associate's degree and certificate programs but, with few exceptions, award no baccalaureate degrees. If awarded, bachelor's degrees represent less than 10 percent of all undergraduate awards.

	DAS variable
Carnegie Code with control—continued	**CC2000A**
Public nondoctoral	Public institutions with a "Baccalaureate Colleges" or "Master's Colleges and Universities" Carnegie Code. Baccalaureate colleges include institutions that are primarily undergraduate colleges with major emphasis on baccalaureate programs. Master's colleges and universities typically offer a wide range of baccalaureate programs, and they are committed to graduate education through the master's degree. They award 20 or more master's degrees per year.
Public doctoral	Public institutions with a "Doctorate-granting Institutions" Carnegie Code. These institutions typically offer a wide range of baccalaureate programs, and they are committed to graduate education through the doctorate. They award at least 10 doctoral degrees per year across 3 or more disciplines or at least 20 doctoral degrees overall.
Private not-for-profit nondoctoral (except liberal arts)	Private not-for-profit institutions with a "Baccalaureate Colleges" or "Master's Colleges and Universities" Carnegie Code *except* those in the "Baccalaureate Colleges—Liberal Arts" subgroup, which are colleges that award at least half of their baccalaureate degrees in liberal arts fields.
Private not-for-profit doctoral and liberal arts	Private not-for-profit institutions with a "Doctorate-granting Institutions" Carnegie Code or a "Baccalaureate—Liberal Arts" Code.

Citizenship **CITIZEN2**

Student's citizenship status. For this analysis, this variable was used as a filter to select students who were U.S. citizens, nationals, or resident aliens in 1999–2000.

U.S. citizen	Student was a U.S. citizen or U.S. national in 1999–2000.
Resident alien	Student was a permanent or temporary U.S. resident eligible for federal financial aid in 1999–2000.
Foreign/international student	Student was not a U.S. citizen and was not eligible for financial aid (includes those holding student or exchange visitor visas).

Graduating senior **COLLGRAD**

Indicates whether the student received a bachelor's degree in 1999–2000. In addition to those whose degree status was confirmed in the CATI interview, this variable includes CATI nonrespondents who were reported to be graduating seniors by the institution in CADE. It also includes some students who earned their bachelor's degree in the third year. This variable was used as a filter for the table presenting information on cumulative borrowing.

DAS variable

Delayed enrollment **DELAYENR**

The number of calendar years between high school graduation and the first year enrolled in postsecondary education. Immediate enrollment is defined as entry into postsecondary education the same calendar year as high school graduation. The assumption is that high school graduation takes place in May or June and postsecondary enrollment takes place in the fall.

Did not delay	Student entered postsecondary education the same calendar year as high school graduation.
Delayed enrollment	Student entered postsecondary education 1 or more calendar years after high school graduation.

Dependency status **DEPEND**

Students were considered to be financially independent for federal financial aid purposes in 1999–2000 if they met any of the following criteria:

1) Student was 24 years old or older as of 12/31/99;
2) Student was a veteran of the U.S. Armed Forces;
3) Student was enrolled in a graduate or professional program (beyond a bachelor's degree) in 1999–2000;
4) Student was married;
5) Student was an orphan or ward of the court; or
6) Student had legal dependents other than spouse.

All other students under 24 were considered to be dependent unless they demonstrated that they were receiving no parental support and were classified as independent by a financial aid officer using professional judgment. This variable was used as a filter to select dependent students.

Dependent
Independent

Dependent 1998 income **DEPINC**

Dependent student parents' total income for 1998. Based on amounts reported in the financial aid application, estimates by students in the CATI interview, or stochastic imputation.

Low	less than $30,000
Low-middle	$30,000–44,999
Middle	$45,000–74,999
Upper-middle	$75,000–99,999
High	$100,000 or more

Expected family contribution **EFC4**

Composite estimate of the federal expected family contribution used in need analysis. For Pell grant recipients, the EFC on the Pell grant record in NSLDS was used; for other federal financial aid applicants, the primary EFC from the most recent CPS record was used if available; otherwise the EFC reported by the NPSAS institution in CADE was used. For students who did not apply for federal financial aid (42 percent), the EFC was imputed by regression for each dependency status.

DAS variable

Ratio of federal aid to total aid **FEDPCT**

The percentage of total aid received during 1999–2000 that was federal, excluding Veterans Affairs and Department of Defense (VA/DOD) aid, but including PLUS loans. Computed only for students who had some aid.

Student budget minus EFC **FTNEED1**

Financial aid need. Equal to the student budget minus the federal expected family contribution.

Student budget minus EFC minus aid **FTNEED2**

Remaining need after all financial aid was applied. Equal to the student budget minus the federal expected family contribution minus the total financial aid received in 1999–2000.

Sex **GENDER**

Male
Female

Ratio of grants to student budget **GRTCST**

The total amount of grant aid received in 1999–2000 as a percentage of the student budget.

Ratio of grants to total aid **GRTPCT**

The percentage of total aid received during 1999–2000 that was grant aid. Computed only for students who had some aid.

Institutional grants **INGRTAMT**

The total grant aid from institutional funds received in 1999–2000. Includes all institutional grants, scholarships, and tuition waivers received during the NPSAS year. Includes need-based and merit-only awards. At public institutions in some states, the distinction between state and institutional grant funds is not always clear because grants are funded by the state but are allocated by the institutions. The California Community College Board of Governor's Grants, California State University Grants, and Educational Opportunity Grants are classified as institutional grants.

Ratio of institutional aid to total aid **INSTPCT**

The percentage of total aid received during 1999–2000 that was institutional aid. Computed only for students who had some aid.

Ratio of loans to student budget **LOANCST**

The total amount of loan aid received in 1999–2000 as a percentage of the student budget.

DAS variable

Ratio of loans to total aid **LOANPCT2**

The percentage of total aid received during 1999–2000 that was loans (including PLUS loans). Computed only for students who had some aid.

Local residence **LOCALRES**

Students' residence while enrolled

On campus	Institution-owned living quarters for students. These are typically on-campus or off-campus dormitories, residence halls, or other facilities.
Off campus	Student lived off campus in noninstitution-owned housing but not with her or his parents or relatives.
Living with parents/other relatives	Student lived at home with parents or other relatives.

Parents help pay tuition **NCPARTUI**

Student's response to the CATI question: "Did anyone, such as your parent(s)/guardian(s) pay your tuition and fees on your behalf for the 1999–2000 school year?" Asked of CATI respondents under the age of 30.

Yes, some or all of it
No

Paid parents room and board **NCPAYPAR**

Student's response (yes/no) to the CATI question: "Did you pay your parent(s)/guardian(s) room and board to live with them during the 1999–2000 school year?" Asked of CATI respondents under the age of 30 who lived with their parents while enrolled for the 1999–2000 school year.

Amount of parental support for nontuition expenses **NCSUPAMT**

Student's response to the CATI question: "How much (were you given for school-related expenses other than tuition)?" Asked of CATI respondents under the age of 30.

Balance due on all credit cards **NDCRDBAL**

Among those who reported carrying a credit card balance, student's response to the CATI question: "What was the balance due on all credit cards, according to your last statement?"

DAS variable

Job affects grades **NDEFFGRD**

Student's response to the CATI question: "Would you say that working while you were going to school had had a positive effect, a negative effect, or no effect on the grades you earned?" Asked of CATI respondents who reported being primarily students who worked.

Positive effect
Negative effect
No effect

Job helps with career preparation **NDHLPCAR**

Student's response (yes/no) to the CATI question: "Did having a job while you were going to school help you with career preparation?" Asked of CATI respondents who reported being primarily students who worked.

Job helps with coursework **NDHLPCLS**

Student's response (yes/no) to the CATI question: "Did having a job while you were going to school help you with class work?" Asked of CATI respondents who reported being primarily students who worked.

Job limits number of classes **NDLIMCLS**

Student's response (yes/no) to the CATI question: "Did having a job while you were going to school limit the number of classes you could take?" Asked of CATI respondents who reported being primarily students who worked.

Job limits library access **NDLIMLIB**

Student's response (yes/no) to the CATI question: "Did having a job while you were going to school limit your access to the library?" Asked of CATI respondents who reported being primarily students who worked.

Job limits class schedule **NDLIMSCH**

Student's response (yes/no) to the CATI question: "Did having a job while you were going to school limit the class schedule you could have?" Asked of CATI respondents who reported being primarily students who worked.

Credit card practices **NDPAYOFF**

Created from student's responses to the CATI questions: "How many credit cards do you have in your own name that are billed to you?" and "Do you usually pay off your credit card balances each month, or carry balances over from month to month?" Asked of CATI respondents.

No credit cards
Payoff balances
Carry balances

DAS variable

Job restricts class choice **NDRSTRCT**

Student's response (yes/no) to the CATI question: "Did having a job while you were going to school restrict your choice of classes?" Asked of respondents who reported being primarily students who worked.

Hours worked during summer 1999 **NDSMRHR**

Student's response to the CATI question: "How many hours per week did you typically work during the summer of 1999?" Asked of CATI respondents who reported working during the summer of 1999. Applies to undergraduate CATI respondents under age 25 who reported working during the 1999–2000 school year and considered themselves primarily students who worked.

Amount saved to pay education expenses **NDSMRSAV**

Student's response to the CATI question: "In dollars, about how much of your summer earnings would you estimate you saved to pay for educational expenses during the 1999–2000 school year?" Asked of CATI respondents who reported working during the summer of 1999. Applies to undergraduate CATI respondents under age 25 who reported working during the 1999–2000 school year and considered themselves primarily students who worked.

Worked during summer 1999 **NDSUMMR**

Student's response to the CATI question: "Did you work for pay during the summer of 1999?" Applies to undergraduate CATI respondents under age 25 who considered themselves primarily students who worked.

Student budget minus all aid except work-study **NETCST18**

Student budget minus all financial aid except work-study amounts.

Parents' education **NPARED**

The highest level of education completed by the student's mother or father, whoever had the highest level. The variable was aggregated to the following categories in this report:

High school diploma or less	Students' parents earned a high school diploma or equivalent or did not complete high school.
Some postsecondary education	Students' parents attended some postsecondary education but did not earn a bachelor's degree.
Bachelor's degree or higher	Students' parents attained a bachelor's or advanced degree.

Pell grant amount **PELLAMT**

The federal Pell grant amount received during 1999–2000. Pell grants are awarded to undergraduates who have not yet received a bachelor's or first-professional degree. They are intended as a financial base, to which other financial aid awards can be added. The amount of a Pell grant depends on the EFC, price of attendance, and attendance status (full-time or part-time, full-year or part-year). In 1999–2000, the maximum Pell grant amount was $3,125.

DAS variable

Ratio of Pell grant amount to total aid **PELLRAT1**

The percentage of total aid received in 1999–2000 that was Pell grant aid. Computed only for students who had some aid.

Perkins loans **PERKAMT**

The federal Perkins loan amount received during 1999–2000. The Perkins loan is a campus-based (administered by each institution) low-interest loan for students who show exceptional financial need. Priority is given to Pell grant recipients. For undergraduates, total annual awards cannot exceed $3,000, and the maximum amount that can be borrowed is $15,000.

PLUS loans **PLUSAMT**

The total amount of federal PLUS loans to parents in 1999–2000. Federal Parent Loans to Undergraduate Students are available to the parents of undergraduates in addition to any federal Stafford loans for which students are eligible. PLUS loans are not based on need and may be used to cover the federal EFC. There is no fixed limit to the amount of a PLUS loan, but the loan may not exceed the student budget minus any other financial aid. PLUS loans are available only to parents who can meet certain credit-worthiness criteria; if they cannot do so, the dependent student for whom the loan is intended may apply to receive an unsubsidized Stafford loan up to the higher limit normally available only to independent students.

Private sources grants **PRIVAID**

The amount of grants and scholarships received from private outside sources during 1999–2000. Approximately half of the private grants were student-reported in CATI. Student-reported aid amounts are not always reliable and were edited (reduced) in relation to the student budget and other aid received.

Race/ethnicity **RACE2**

Undergraduate's race/ethnicity. Students were asked their race and whether they were Hispanic or Latino. Students choosing more than one race were shown as a separate category. Those who chose Hispanic or Latino were coded as Hispanic regardless of race.

American Indian	A person having origins in any of the original peoples of North America and who maintains cultural identification through tribal affiliation or community recognition. Includes Alaska Natives.
Asian	A person having origins in any of the peoples of the Far East, Southeast Asia, or the Indian subcontinent. This includes people from China, Japan, Korea, the Philippine Islands, India, and Vietnam.
Black	A person having origins in any of the black racial groups of Africa. Includes African Americans.
Pacific Islander	A person having origins in the Pacific Islands including Hawaii and Samoa.

	DAS variable
Race/ethnicity—continued	**RACE2**
White	A person having origins in any of the original peoples of Europe, North Africa, or the Middle East.
More than one race	A person having origins in more than one race.
Other	A person having origins in a race not listed above.
Hispanic or Latino	A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.

FSEOG Amount **SEOGAMT**

The FSEOG (Federal Supplemental Educational Opportunity Grant) amount received in 1999–2000. The FSEOG is a federal, campus-based (administered by each institution) grant for undergraduates who have not yet received a bachelor's or first-professional degree and who show exceptional financial need. It is intended to supplement the Pell grant (priority is given to Pell grant recipients), and awards a maximum of $4,000 per year. However, unlike the Pell grant, eligibility does not guarantee an FSEOG award because the funds available to a particular institution may be limited.

Stafford subsidized loans **STAFSUB**

The amount of subsidized Stafford loans received in 1999–2000. Subsidized Stafford loans are need-based, and the federal government pays the interest while the student is enrolled and for 6 months after leaving postsecondary education.

Stafford unsubsidized loans **STAFUNSB**

The amount of unsubsidized Stafford loans received during 1999–2000. Unsubsidized Stafford loans are available to students enrolled at least half time (usually taking at least two courses) without demonstrating need. Students are charged interest on the loan while they are enrolled, and the interest is added to the original loan principal.

Ratio of state aid to total aid **STAPCT**

The percentage of total aid received during 1999–2000 that was state aid. Computed only for students who had some aid.

State grants **STGTAMT**

The total amount of state grants, scholarships, and fellowships (including the federal portion of LEAP funds to states) received in 1999–2000.

Total federal grants **TFEDGRT**

The total amount of federal grants received by a student in 1999–2000. Includes Pell grants, FSEOG grants, and a small number of Robert Byrd Scholarships. Does not include federal veteran's benefits or military education aid.

DAS variable

Total federal loans (including PLUS) **TFEDLN2**

The total amount of federal loans received during 1999–2000, including PLUS loans to parents. Includes Perkins, Stafford, other federal loans through the Public Health Service, and PLUS loans.

Total aid **TOTAID**

The total amount of financial aid received by a student in 1999–2000. Includes grants, loans, work-study, or any other types of aid, as well as loans to parents under the PLUS program, veterans benefits, and military education aid.

Total grants **TOTGRT**

The total amount of grants received by a student in 1999–2000. Grants are a type of student financial aid that does not require repayment or employment. Grants include merit-only scholarships, tuition waivers, and employer tuition reimbursements as well as need-based grants.

Total loans (including PLUS) **TOTLOAN2**

The total amount of all student loans (federal, state, institutional, and private sector) and federal PLUS loans to parents received during 1999–2000. Does not include loans from family or friends to the student or commercial loans to parents (such as home equity loans).

Total other type of aid excluding PLUS **TOTOTHR2**

The amount of other types of aid, excluding federal parent PLUS loans.

Total work-study **TOTWKST**

The total amount of all work-study awards received during 1999–2000. Institutions were asked to report the amount actually earned rather than the award amount, which may be greater.

Tuition and fees **TUITION2**

Tuition and fees charged at the sampled NPSAS institution for students who attended only one institution during 1999–2000.

Hours worked per week **WKHRS2**

Average number of hours worked per week while enrolled, including unreported work-study jobs, which were assumed to require 15 hours per week. CATI variable.

Earnings from work while enrolled **WKINC2**

Total calculated earnings for school year. Applies to respondents who worked while enrolled. CATI variable.

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix B—Technical Notes

The 1999–2000 National Postsecondary Student Aid Study

The 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000) is a comprehensive nationwide study conducted by the U.S. Department of Education's National Center for Education Statistics (NCES) to determine how students and their families pay for postsecondary education.[14] It also describes demographic and other characteristics of students enrolled. The study is based on a nationally representative sample of all students in postsecondary education institutions, including undergraduate, graduate, and first-professional students. For NPSAS:2000, information was obtained from more than 900 postsecondary institutions on approximately 50,000 undergraduate, 9,000 graduate, and 3,000 first-professional students. They represented about 16.5 million undergraduates, 2.4 million graduate students, and 300,000 first-professional students who were enrolled at some time between July 1, 1999 and June 30, 2000.[15]

The response rate for obtaining institutional record data for all students was 97 percent and the weighted overall student interview response rate was 65.6 percent.[16] Because the student telephone interview response rates for NPSAS:2000 were less than 70 percent in some institutional sectors, an analysis was conducted to determine if Computer Assisted Telephone Interview (CATI) estimates were significantly biased due to CATI nonresponse.[17] Considerable information was known for CATI nonrespondents and these data were used to analyze and reduce the bias. The distributions of several variables using the design-based, adjusted weights for study respondents (study weights) were found to be biased before CATI nonresponse adjustments. The CATI nonresponse and poststratification procedures, however, reduced the bias for these variables; and the remaining relative bias ranged from 0 to 0.35 percent.

[14]For more information on the NPSAS survey, consult U.S. Department of Education, National Center for Education Statistics, *Methodology Report for the 1999–2000 National Postsecondary Student Aid Study* (NCES 2002–152) (Washington, DC: 2001). Additional information is also available at the NPSAS web site *http://nces.ed.gov/npsas*.

[15]For response rates, see tables A3 and A4 in A. Malizio, *National Postsecondary Student Aid Study: Student Financial Aid Estimates for 1999–2000* (NCES 2001–209) (Washington, DC: U.S. Department of Education, National Center for Education Statistics, 2001).

[16]Ibid.

[17]For nonresponse bias analysis, see U.S. Department of Education, National Center for Education Statistics, *National Postsecondary Student Aid Study, 1999–2000 (NPSAS:2000), CATI Nonresponse Bias Analysis Report* (NCES 2002–03) (Washington, DC: 2002), available at *http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=200203*

Accuracy of Estimates

The statistics in this report are estimates derived from a sample. Two broad categories of error occur in such estimates: sampling and nonsampling errors. Sampling errors occur because observations are made only on samples of populations rather than on entire populations. Nonsampling errors occur not only in sample surveys but also in complete censuses of entire populations. Nonsampling errors can be attributed to a number of sources: inability to obtain complete information about all sample members (e.g., some students or institutions refused to participate, or students participated but answered only certain items); ambiguous definitions; differences in interpreting questions; inability or unwillingness to give correct information; mistakes in recording or coding data; and other errors of collecting, processing, sampling, and imputing missing data.

Weighted item response rates were calculated for all variables used in this report. The weighted item response rates were calculated by dividing the final weighted number of valid responses by the weighted population for which the item was applicable. Most of the items had very high response rates (at least 85 percent). For these variables, it is unlikely that reported differences between low- and middle-income students are biased because of missing data. Two variables had an item response rate below 85 percent: NDCRDBAL (the balance due on all credit cards according to their last statement for students who reported that they usually carried a balance) and NDSMRSAV (the amount students who worked during the summer saved for their education expenses) (table B-1). Since both of these variables are related to income, it is important to consider whether the response rates differ for low- and middle-income students. In the case of NCCRDBAL, both low- and middle-income students had response rates of 64 percent. For NDSMRSAV, the response rate for low-income students was slightly lower for low-income students (76 percent) than for middle-income students (82 percent).

Table B-1. Variables with response rates less than 85 percent

Variable name	Variable label	Population	Item response rate
NDCRDBAL	Balance due on all credit cards	All students	64.8
		Low-income students	63.6
		Middle-income students	64.1
NDSMRSAV	Amount saved to pay education expenses	All students	81.0
		Low-income students	75.8
		Middle-income students	82.1

NOTE: Weighted item response rates were calculated by dividing the total weighted number of valid responses by the total population for whom the question was applicable. Bias analyses were conducted for variables with a weighted item response rate below 85 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 National Postsecondary Student Aid Study (NPSAS: 2000).

For NCCRDBA, the low item response rate (65 percent) is due in part to the fact that the question was applicable to a relatively small proportion of the sample (33 percent). Given the methodology for calculating the item response rates, all students with incomplete interviews (9 percent) are assumed to have been eligible to answer the question and not responded, which is very unlikely. When students with incomplete interviews are excluded from the calculation, the item response rate for NCCRDBAL is 89 percent. NDSMRSAV applied to a relatively larger number of students (66 percent), which means that incomplete interviews have a smaller effect on the response rate. Excluding students with incomplete interviews from the calculation increases the item response rate to 93 percent overall and also for low- and middle-income students separately. Given the similarity in response rates for low- and middle-income students for these variables, it is unlikely that bias was introduced due to differential response rates for the two income groups.

Data Analysis System

The estimates presented in this report were produced using the NPSAS:2000 Data Analysis System (DAS). The DAS software makes it possible for users to specify and generate their own tables from the NPSAS:2000 data. With the DAS, users can replicate or expand upon the tables presented in this report. In addition to the table estimates, the DAS calculates proper standard errors[18] and weighted sample sizes for these estimates. For example, table B-2 contains standard errors that correspond to table 5 of this report, and they were generated by the DAS. If the number of valid cases is too small to produce a reliable estimate (fewer than 30 cases), the DAS prints the message "low-N" instead of the estimate.

The DAS can be accessed electronically at *http://nces.ed.gov/DAS*. For more information about the NPSAS:2000 Data Analysis System, contact:

Aurora D'Amico
Postsecondary Studies Division
National Center for Education Statistics
1990 K Street NW
Washington, DC 20006-5652
(202) 502-7334
aurora.d'amico@ed.gov

[18]The NPSAS:2000 sample is not a simple random sample, and therefore, simple random sample techniques for estimating sampling error cannot be applied to these data. The DAS takes into account the complexity of the sampling procedures and calculates standard errors appropriate for such samples. The method for computing sampling errors used by the DAS involves approximating the estimator by the linear terms of a Taylor series expansion. The procedure is typically referred to as the *Taylor series method.*

Table B-2. Standard errors for table 5: Percentage of full-time, full-year dependent undergraduates who applied for and received financial aid and type of aid, by institution type and family income: 1999–2000

Institution type and family income	Applied for financial aid	Received financial aid	Type of aid: Grants	Type of aid: Loans (including PLUS[1])	Type of aid: Work-study	Type of aid: Other[2]
Total	0.51	0.60	0.71	0.67	0.51	0.19
Public 2-year						
Total	1.55	1.82	2.00	1.35	0.72	0.39
Family income						
Low: less than $30,000	2.59	2.56	2.66	2.02	1.85	0.61
Low middle: $30,000–44,999	3.80	4.07	4.02	3.86	1.43	0.92
Middle: $45,000–74,999	2.54	2.71	2.51	2.32	0.93	0.65
Upper middle: $75,000–99,999	4.69	5.47	4.27	4.00	#	0.96
High: $100,000 or more	5.98	4.18	3.54	2.19	#	1.85
Public nondoctoral						
Total	0.88	0.99	1.51	1.49	0.98	0.36
Family income						
Low: less than $30,000	0.99	1.30	1.54	3.96	1.89	0.72
Low middle: $30,000–44,999	1.73	2.02	2.50	3.44	2.46	0.52
Middle: $45,000–74,999	1.30	1.75	2.43	2.15	1.40	0.61
Upper middle: $75,000–99,999	2.19	2.20	2.88	2.81	1.02	0.74
High: $100,000 or more	2.66	2.82	2.40	2.87	1.04	0.85
Public doctoral						
Total	0.65	0.79	0.81	0.84	0.60	0.26
Family income						
Low: less than $30,000	1.23	1.39	1.52	1.84	1.53	0.59
Low middle: $30,000–44,999	1.53	1.76	2.15	2.09	1.77	0.85
Middle: $45,000–74,999	1.30	1.51	1.69	1.66	1.01	0.50
Upper middle: $75,000–99,999	1.61	1.84	2.01	2.11	0.79	0.61
High: $100,000 or more	1.77	2.10	1.80	1.82	0.46	0.44
Private not-for-profit nondoctoral (except liberal arts)						
Total	0.60	0.64	1.38	1.61	1.88	0.94
Family income						
Low: less than $30,000	0.74	0.87	1.09	3.90	2.77	1.49
Low middle: $30,000–44,999	0.80	1.16	1.68	3.03	3.34	2.06
Middle: $45,000–74,999	0.69	0.82	1.82	1.95	2.89	1.22
Upper middle: $75,000–99,999	1.57	1.73	2.72	2.94	2.94	0.61
High: $100,000 or more	1.88	1.92	3.46	2.81	2.70	0.80
Private not-for-profit doctoral and liberal arts						
Total	1.33	1.60	1.85	1.48	1.45	0.23
Family income						
Low: less than $30,000	2.14	2.23	2.37	2.79	3.04	0.77
Low middle: $30,000–44,999	2.49	2.45	2.79	3.04	4.22	1.29
Middle: $45,000–74,999	1.64	2.35	2.84	2.94	2.70	0.23
Upper middle: $75,000–99,999	2.34	2.42	2.97	2.60	2.91	0.44
High: $100,000 or more	2.21	2.39	2.46	1.96	1.47	0.25

#Rounds to zero.

[1]PLUS loans are taken out by parents.

[2]All other types of aid, such as ROTC, aid for veterans' dependents and survivors, and other unidentified types of aid.

NOTE: Limited to undergraduates at public 2-year and public and private not-for-profit 4-year institutions who attended only one institution and who were U.S. citizens or permanent residents.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000).

Family Income Categories

In selecting the family income categories, consideration was given to which students received Pell grants and subsidized Stafford loans. The Pell Grant program targets students from low-income families. At a family income level of $25,000–29,999, two-thirds of students at public 4-year institutions received a Pell grant in 1999–2000 (table B-3). At the

Table B-3. Percentage of full-time, full-year dependent undergraduates at selected types of institutions who received Pell grants and Stafford loans, by family income: 1999–2000

Family income	Percent at public 4-year institutions with a Pell grant	Percent at public 4-year institutions with a Pell grant of $1,000 or more	Percent at public 4-year institutions with a subsidized Stafford loan	Percent at private not-for-profit 4-year institutions with a subsidized Stafford loan
Total	21.6	17.9	32.9	50.0
Family income				
Less than $15,000	77.1	75.6	49.0	52.6
$15,000–19,999	78.3	72.4	54.0	70.0
$20,000–24,999	70.3	62.3	51.2	70.3
$25,000–29,999	67.4	55.5	58.5	64.8
$30,000–34,999	45.8	34.8	44.0	64.6
$35,000–39,999	33.3	22.7	51.4	63.4
$40,000–44,999	22.7	12.3	51.2	72.8
$45,000–49,999	10.1	3.1	43.8	64.7
$50,000–54,999	4.5	1.4	47.7	62.2
$55,000–59,999	2.9	0.1	35.4	73.1
$60,000–64,999	1.8	0.4	35.5	58.1
$65,000–69,999	#	#	30.2	62.4
$70,000–74,999	1.2	0.5	26.2	59.8
$75,000–79,999	#	#	19.5	42.7
$80,000–84,999	0.5	0.5	16.4	51.1
$85,000–89,999	#	#	16.3	41.5
$90,000–94,999	#	#	12.1	37.0
$95,000–99,999	#	#	7.1	32.9
$100,000 or more	#	#	5.7	18.0

#Rounds to zero.

NOTE: Limited to undergraduates at public 2-year and public and private not-for-profit 4-year institutions who attended only one institution and who were U.S. citizens or permanent residents.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000).

next highest income level, the percentage dropped to below half (46 percent). Thus, $29,999 seemed to be an appropriate upper bound for the low-income category. In defining the middle-income category, the goal was to identify students who were not served by the Pell grant program but who used federally subsidized loans to help pay for college. The lower bound for this group appears to start at about $45,000. Above $45,000, only 3 percent of students at public 4-year institutions received Pell grants of $1,000 or more. The upper bound of the middle-income category was set at $74,999, beyond which fewer than one-quarter used subsidized Stafford loans to attend a public 4-year institution. This categorization of low- and middle-income students left a low-middle-income group that was not clearly one either low- or middle-income ($30,000–44,999). At the higher income levels, a distinction was made between upper-middle-income ($75,000–99,999) and high-income students (more than $100,000) because of the difference in the rates at which the two groups received subsidized loans at private not-for-profit institutions (33 percent for the former and 18 percent for the latter).

Institution Types

Private not-for-profit liberal arts colleges are considered nondoctoral institutions in the Carnegie classification because they do not award degrees higher than a master's. However, full-time, full-year dependent students at liberal arts colleges appeared more similar to their counterparts at doctoral than at nondoctoral institutions with respect to important characteristics related to price and paying for college in 1999–2000. These characteristics include tuition paid, budget, expected family contribution (EFC), financial aid received, and net cost (table B-4). In addition, students at liberal arts colleges more closely resembled their peers at doctoral institutions than at nondoctoral ones in terms of certain background characteristics such as parents' education and the highest degree they expected to earn. Therefore, for the purposes of this study, private not-for-profit liberal arts institutions were grouped with doctoral institutions.

Table B-4. Characteristics of full-time, full-year dependent undergraduates at private not-for-profit nondoctoral, doctoral, and liberal arts institutions: 1999–2000

Student characteristics	Private not-for-profit		
	Nondoctoral	Doctoral	Liberal arts
Average tuition and fees	$13,300	$20,200	$19,300
Average budget	21,400	29,700	27,100
Average EFC	10,900	15,700	13,000
Average amounts of aid (for students with aid)			
Total	13,100	17,800	16,000
Grants	7,700	12,000	10,700
Loans	7,400	8,500	7,400
Work study	1,500	1,900	1,500
Institutional aid	6,300	10,500	9,500
Average net cost (budget minus aid) for students with aid	10,200	17,400	15,400
Average amounts of aid (for all students, including unaided)			
Total	12,100	13,300	13,000
Grants	6,400	7,900	7,800
Loans	5,000	4,800	4,700
Work study	500	500	500
Institutional aid	4,600	6,400	6,200
Average net cost (budget minus aid) for all students, including unaided	9,300	16,400	14,100
Percentage of students with at least one parent with a bachelor's degree or higher	52	74	70
Percentage of students expecting to earn higher than a bachelor's degree	82	88	88

NOTE: Limited to undergraduates at public 2-year and public and private not-for-profit 4-year institutions who attended only one institution and who were U.S. citizens or permanent residents.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000).

Statistical Procedures

Differences Between Means

The descriptive comparisons were tested in this report using Student's *t* statistic. Differences between estimates are tested against the probability of a Type I error,[19] or significance level. The significance levels were determined by calculating the Student's *t* values for the differences between each pair of means or proportions and comparing these with published tables of significance levels for two-tailed hypothesis testing.

Student's *t* values may be computed to test the difference between estimates with the following formula:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2}} \tag{1}$$

where E_1 and E_2 are the estimates to be compared and se_1 and se_2 are their corresponding standard errors. This formula is valid only for independent estimates. When estimates are not independent, a covariance term must be added to the formula:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2 - 2(r)se_1\, se_2}} \tag{2}$$

where r is the correlation between the two variables.[20] The denominator in this formula will be at its maximum when the two estimates are perfectly negatively correlated; that is, when $r = -1$. This means that a conservative dependent test may be conducted by using –1 for the correlation in this formula, or

$$t = \frac{E_1 - E_2}{\sqrt{(se_1)^2 + (se_2)^2 + 2se_1 se_2}}. \tag{3}$$

The estimates and standard errors are obtained from the DAS.

[19]A Type I error occurs when one concludes that a difference observed in a sample reflects a true difference in the population from which the sample was drawn when no such difference is present.

[20]U.S. Department of Education, National Center for Education Statistics, *A Note from the Chief Statistician,* no. 2, 1993.

There are hazards in reporting statistical tests for each comparison. First, comparisons based on large *t* statistics may appear to merit special attention. This can be misleading since the magnitude of the *t* statistic is related not only to the observed differences in means or percentages but also to the number of respondents in the specific categories used for comparison. Hence, a small difference compared across a large number of respondents would produce a large *t* statistic.

Comparisons were made in this report only when $p \leq .05$. The alpha level of .05 selected for findings in this report indicates that a difference of a certain magnitude or larger would be produced no more than one time out of twenty when there was no actual difference in the quantities in the underlying population. When we test hypotheses that show *t* values at the .05 level or smaller, we treat this finding as rejecting the null hypothesis that there is no difference between the two quantities.